(a) SEQ ID No: 1;

(b) a sequence which encodes a polypeptide encoded by SEQ ID No: 1;

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(c) a sequence comprising at least 60 consecutive nucleotides from any one of the nucleic acid sequences of (a) and (b); and

(d) a sequence which encodes a polypeptide which is at least 80% identical in amino acid sequence to the polypeptide encoded by SEQ ID No: 1.

46. (New) A nucleic acid molecule comprising a nucleic acid sequence which is anti-sense to the nucleic acid molecule of claim 44.

47. (New) A nucleic acid molecule comprising a nucleic acid sequence which encodes a fusion protein, said fusion protein comprising a polypeptide encoded by a nucleic acid molecule according to claim 44 and a second polypeptide.

48. (New) The nucleic acid molecule of claim 47 wherein the second polypeptide is a heterologous signal peptide.

49. (New) The nucleic acid molecule of claim 47 wherein the second polypeptide has adjuvant activity.

50. (New) A nucleic acid molecule according to claim 44, operatively linked to one or more expression control sequences.

51. (New) A vaccine comprising a vaccine vector and at least one first nucleic acid selected from any of:

(i) SEQ ID No: 1;

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(ii) a nucleic acid sequence which encodes a polypeptide encoded by SEQ ID No: 1;

(iii) a nucleic acid sequence comprising at least 38 consecutive nucleotides from any one of the nucleic acid sequences of (i) and (ii);

(iv) a nucleic acid sequence which encodes a polypeptide which is at least 75% identical in amino acid sequence to the polypeptide encoded by SEQ ID No: 1;

(v) a nucleic acid sequence which encodes a polypeptide whose sequence is set forth in SEQ ID No: 2;

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(vi) a nucleic acid sequence which encodes an immunogenic fragment comprising at least 12 consecutive amino acids from SEQ ID No:2; and

(vii) a nucleic acid sequence which encodes a polypeptide as defined in (i) to (v) or an immunogenic fragment as defined in (vi) which has been modified without loss of immunogenicity, wherein said modified polypeptide or fragment is at least 75% identical in amino acid sequence to the corresponding polypeptide of (i) to (v) or the corresponding fragment of (vi);

wherein each first nucleic acid is capable of being expressed.

52. (New) A vaccine comprising a vaccine vector and at least one first nucleic acid encoding a fusion protein, wherein the fusion protein comprises:

(a) a first polypeptide selected from any of:

(i) a polypeptide encoded by SEQ ID No: 1;

(ii) a polypeptide encoded by a nucleic acid sequence comprising at least 38 consecutive nucleotides from SEQ ID No: 1;

(iii) a polypeptide which is at least 75% identical in amino acid sequence to the polypeptide encoded by SEQ ID No: 1;

(iv) a polypeptide whose sequence is set forth in SEQ ID No: 2;

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(v) an immunogenic fragment comprising at least 12 consecutive amino acids from SEQ ID No:2; and

(vi) a polypeptide as defined in (i) to (iv) or an immunogenic fragment as defined in (v) which has been modified without loss of immunogenicity, wherein said modified polypeptide or fragment is at least 75% identical in amino acid sequence to the corresponding polypeptide of (i) to (iv) or the corresponding fragment of (v); and

(b) a second polypeptide;

wherein each first nucleic acid is capable of being expressed.

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53. (New) The vaccine of claim 52 wherein the second polypeptide is a heterologous signal peptide.

54. (New) The vaccine of claim 52 wherein the second polypeptide has adjuvant activity.

55. (New) The vaccine of claim 51 wherein each first nucleic acid is operatively linked to one or more expression control sequences.

56. (New) A vaccine according to claim 51 wherein each first nucleic acid is expressed as a polypeptide and wherein the vaccine comprises a second nucleic acid encoding an additional polypeptide which enhances the immune response to the polypeptide expressed by said first nucleic acid.

57. (New) The vaccine of claim 56 wherein the second nucleic acid encodes an additional *Chlamydia* polypeptide.

58. (New) A pharmaceutical composition comprising a nucleic acid according to claim 44 and a pharmaceutically acceptable carrier.

59. (New) A pharmaceutical composition comprising a vaccine according to claim 51 and a pharmaceutically acceptable carrier.

60. (New) A unicellular host transformed with the nucleic acid molecule of claim 50.

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61. (New) A nucleic acid probe of 5 to 100 nucleotides which is at least 75% similar to the nucleic acid molecule of SEQ ID No: 1, or to a complementary or anti-sense sequence of said nucleic acid molecule.

62. (New) A primer of 10 to 40 nucleotides which is at least 75% similar to the nucleic acid molecules of SEQ ID No: 1, or to a complementary or anti-sense sequence of said nucleic acid molecule.

63. (New) A polypeptide encoded by a nucleic acid sequence according to claim 45.

64. (New) A polypeptide comprising an amino acid sequence selected from any of:

(a) SEQ ID No: 2;

(b) an immunogenic fragment comprising at least 20 consecutive amino acids from a polypeptide of (a); and

(c) a polypeptide of (a) or (b) which has been modified without loss of immunogenicity, wherein said modified polypeptide is at least 80% identical in amino acid sequence to the corresponding polypeptide of (a) or (b).

65. (New) A fusion protein comprising a polypeptide of claim 63 and a second polypeptide.

66. (New) The fusion protein of claim 65 wherein the second polypeptide is a heterologous signal peptide.

67. (New) The fusion protein of claim 65 wherein the second polypeptide has adjuvant activity.

68. (New) A method for producing a polypeptide of claim 63, comprising the step of culturing a unicellular host transformed with a nucleic acid encoding a polypeptide of claim 63.

69. (New) An antibody against the polypeptide of claim 63.

70. (New) A vaccine comprising at least one first polypeptide selected from any of:

(i) a polypeptide encoded by SEQ ID No: 1;

(ii) a polypeptide encoded by a nucleic acid sequence comprising at least 38 consecutive nucleotides from SEQ ID No: 1;

(iii) a polypeptide which is at least 75% identical in amino acid sequence to the polypeptide encoded by SEQ ID No: 1;

(iv) a polypeptide whose sequence is set forth in SEQ ID No: 2;

(v) an immunogenic fragment comprising at least 12 consecutive amino acids from SEQ ID No:2; and

(vi) a polypeptide as defined in (i) to (iv) or an immunogenic fragment as defined in (v) which has been modified without loss of immunogenicity, wherein said modified

polypeptide or fragment is at least 75% identical in amino acid sequence to the corresponding polypeptide of (i) to (iv) or the corresponding fragment of (v).

71. (New) A vaccine comprising at least one fusion protein, wherein the fusion protein comprises:

(a) a first polypeptide selected from any of:

(i) a polypeptide encoded by SEQ ID No: 1;

(ii) a polypeptide encoded by a nucleic acid sequence comprising at least 38 consecutive nucleotides from SEQ ID No: 1;

(iii) a polypeptide which is at least 75% identical in amino acid sequence to the polypeptide encoded by SEQ ID No: 1;

(iv) a polypeptide whose sequence is set forth in SEQ ID No: 2;

(v) an immunogenic fragment comprising at least 12 consecutive amino acids from SEQ ID No:2; and

(vi) a polypeptide as defined in (i) to (iv) or an immunogenic fragment as defined in (v) which has been modified without loss of immunogenicity, wherein said modified polypeptide or fragment is at least 75% identical in amino acid sequence to the corresponding polypeptide of (i) to (iv) or the corresponding fragment of (v); and

(b) a second polypeptide.

72. (New) The vaccine of claim 71 wherein the second polypeptide is a heterologous signal peptide.

73. (New) The vaccine of claim 71 wherein the second polypeptide has adjuvant activity.

74. (New) A vaccine comprising at least one first polypeptide according to claim 63 and an additional polypeptide which enhances the immune response to the first polypeptide.

75. (New) The vaccine according to claim 74 wherein the additional polypeptide comprises a *Chlamydia* polypeptide.

76. (New) A pharmaceutical composition comprising a polypeptide according to claim 63 and a pharmaceutically acceptable carrier.

77. (New) A pharmaceutical composition comprising a vaccine according to claim 70 and a pharmaceutically acceptable carrier.

78. (New) A pharmaceutical composition comprising an antibody according to claim 69 and a pharmaceutically acceptable carrier.

79. (New) A method for preventing or treating *Chlamydia* infection comprising administering to a patient an effective amount of:

(a) a nucleic acid according to claim 45;

(b) a vaccine comprising a vaccine vector and a nucleic acid according to claim 45;

(c) a pharmaceutical composition comprising a nucleic acid according to claim 45 and a pharmaceutically acceptable carrier;

(d) a polypeptide encoded by a nucleic acid according to claim 45; or

(e) an antibody against a polypeptide encoded by a nucleic acid according to claim 45.

80. (New) A method of detecting *Chlamydia* infection comprising the step of contacting a body fluid of a mammal to be tested, with a component selected from any one of:

(a) a nucleic acid according to claim 45;

(b) a polypeptide encoded by a nucleic acid according to claim 45; and

(c) an antibody against a polypeptide encoded by a nucleic acid according to claim 45.

81. (New) A diagnostic kit comprising instructions for use and a component selected from any one of:

(a) a nucleic acid according to claim 45;

(b) a polypeptide encoded by a nucleic acid according to claim 45; and

(c) an antibody against a polypeptide encoded by a nucleic acid according to claim 45.

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82. (New) A method for identifying a polypeptide of claim 63 which induces an immune response effective to prevent or lessen the severity of *Chlamydia* infection in a mammal previously immunized with polypeptide, comprising the steps of:

(a) immunizing a mouse with the polypeptide of claim 63; and

(b) inoculating the immunized mouse with *Chlamydia;*

wherein the polypeptide which prevents or lessens the severity of *Chlamydia* infection in the immunized mouse compared to a non-immunized control mouse is identified.

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83. (New) A nucleic acid according to claim 50 which is expression plasmid pCAI764 as shown in Figure 3.

84. (New) An isolated ATP/ADP translocase encoded by a nucleic acid according to claim 44, wherein the translocase is from a *Chlamydia* species other than *Chlamydia trachomatis.*

85. (New) An isolated ATP/ADP translocase according to claim 84 which is from *Chlamydia pneumoniae.*